

WHAT IS CLAIMED IS:

1. A vascular treatment device, comprising:
a medical device, formed of a magnetically susceptible material having a magnetic susceptibility that decreases within a preselected temperature range.
2. The vascular treatment device of claim 1, wherein the susceptible material has a Curie temperature in the preselected temperature range.
3. The vascular treatment device of claim 1, wherein the medical device comprises a stent having a core.
4. The vascular treatment device of claim 3, wherein the susceptible material comprises a coating on a surface of the core.
5. The vascular treatment device of claim 4, wherein the coating is disposed on an external surface of the core.
6. The vascular treatment device of claim 4, wherein the coating is disposed on an internal surface of the core.

7. The vascular treatment device of claim 4, wherein the coating is disposed on both an internal and external surface of the core.

8. The vascular treatment device of claim 3, wherein the core is formed of the susceptible material.

9. The vascular treatment device of claim 4, wherein preselected portions of the core material are formed of the susceptible material and preselected portions are formed of another material.

10. The vascular treatment device of claim 4, wherein only preselected portions, less than the entire core, are coated with the susceptible material.

11. The vascular treatment device of claim 4, wherein the core comprises a magnetically susceptible material.

12. The vascular treatment device of claim 1, wherein the susceptible material comprises one of Ferrite Oxide (FEO) and Chromium Oxide (CrO).

13. The vascular treatment device of claim 12 wherein the susceptible material has a particle size less than approximately 500 nanometers.

14. The vascular treatment device of claim 1, wherein the medical device comprises:

a therapeutic agent delivery device.

15. The vascular treatment device of claim 14, wherein the delivery device includes an expandable member, self-expanding to an expanded position at a preselected temperature, and when in the expanded position the expandable member releases the therapeutic agent.

16. The vascular treatment device of claim 1, wherein the medical device comprises:

a self-expanding stent, expanding at a temperature no greater than the preselected temperature range.

17. The vascular treatment device of claim 1 wherein the medical device comprises a balloon catheter.

18. The vascular treatment device of claim 1 wherein the medical device comprises a filter.

19. The vascular treatment device of claim 1 wherein the medical device comprises a guidewire.

20. A vascular treatment system, comprising:
an electromagnetic field generator; and

a medical device deliverable to a treatment site and including a magnetically susceptible material being magnetically susceptible to an electromagnetic field generated by the generator and having a Curie temperature in a preselected temperature range, such that the implantable device heats to a temperature sufficient to treat the treatment site when the electromagnetic field is applied.

21. The vascular treatment system of claim 20, wherein the medical device comprises; a stent having a core material.

22. The vascular treatment system of claim 21, wherein the susceptible material comprises a coating on a surface of the core material.

23. The vascular treatment system of claim 22, wherein the coating is disposed on an external surface of the core material.

24. The vascular treatment system of claim 22, wherein the coating is disposed on an internal surface of the core material.

25. The vascular treatment system of claim 22, wherein the coating is disposed on both an internal and external surface of the core material.

26. The vascular treatment system of claim 21, wherein the core material is formed of the susceptible material.

27. The vascular treatment system of claim 22, wherein preselected portions of the core material are formed of the susceptible material and preselected portions are formed of another material.

28. The vascular treatment system of claim 22, wherein only preselected portions, less than the entire core, are coated with the susceptible material.

29. The vascular treatment system of claim 22, wherein the core material comprises a magnetically susceptible material.

30. The vascular treatment system of claim 20, wherein the susceptible material comprises one of Ferrite Oxide (FeO) and Chromium Oxide (CrO) having a particle size of less than approximately 500nm.

31. The vascular treatment system of claim 20, wherein the medical device comprises:

a therapeutic agent delivery device.

32. The vascular treatment system of claim 31, wherein the delivery device includes an expandable member, self-expanding to an expanded position at a preselected temperature, and when in the expanded position the expandable member releases the therapeutic agent.

33. The vascular treatment system of claim 20, wherein the implantable member comprises:

a self-expanding stent, expanding at a temperature no greater than the preselected temperature range.

34. A method of treating a treatment site in vasculature, comprising:

moving a medical device to the treatment site, the medical device being at least partially formed of a magnetically susceptible material having a Curie temperature in a preselected temperature range; and

applying an alternating electromagnetic field (EMF) to induce heating of the medical device to a temperature no greater than the preselected temperature range.

35. The method of claim 34 wherein the medical device includes a stent core, wherein the susceptible material

is disposed on the stent core to heat in the presence of the applied EMF regardless of an orientation of the stent core relative to the EMF.

36. The method of claim 35 wherein the stent core is formed of a metal and wherein applying the alternating EMF comprises:

rotating the applied EMF.

37. The method of claim 35 wherein the stent core is formed of a metal and wherein applying the alternating EMF comprises:

applying a substantially randomly oriented EMF.

38. The method of claim 34 wherein the medical device includes a stent core, and wherein applying an alternating EMF comprises:

applying the alternating EMF at a frequency selected to increase heating in the magnetically susceptible material and reduce heating in the stent core.

39. The method of claim 34 wherein the magnetically susceptible material is deployed on only a preselected portion of the medical device such that applying the alternating EMF heats substantially only the preselected portion of the medical device.

40. The method of claim 34 wherein the medical device comprises an expandable stent and wherein applying the alternating EMF heats the expandable stent to an expansion temperature during expansion of the stent.

41. The method of claim 34 wherein the medical device comprises an expandable therapeutic agent delivery device holding a therapeutic agent when in a contracted configuration and releasing the therapeutic agent when in an expanded configuration and wherein applying the alternating EMF causes expansion of the delivery device at a temperature not exceeding the preselected temperature range.